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Cancer Risk Slope Factors Sum  
Risk Library: FGR 13 Morb

Summary Table  
Identity

Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-1	Ground external radiation slope factors, 1/yr per (pCi/g)			
Sf-1	Cs-137+D	2.55E-06	5.32E-10	SLPF( 1,1)
Sf-1	Sr-90+D	1.96E-08	4.82E-10	SLPF( 2,1)
Sf-2	Inhalation, slope factors, 1/(pCi)			
Sf-2	Cs-137+D	1.12E-10	1.12E-10	SLPF( 1,2)
Sf-2	Sr-90+D	4.33E-10	4.25E-10	SLPF( 2,2)
Sf-3	Food ingestion, slope factors, 1/(pCi)			
Sf-3	Cs-137+D	3.74E-11	3.74E-11	SLPF( 1,3)
Sf-3	Sr-90+D	9.53E-11	6.88E-11	SLPF( 2,3)
Sf-3	Water ingestion, slope factors, 1/(pCi)			
Sf-3	Cs-137+D	3.04E-11	3.04E-11	SLPF( 1,4)
Sf-3	Sr-90+D	7.40E-11	5.59E-11	SLPF( 2,4)
Sf-3	Soil ingestion, slope factors, 1/(pCi)			
Sf-3	Cs-137+D	3.74E-11	3.74E-11	SLPF( 1,5)
Sf-3	Sr-90+D	9.53E-11	6.88E-11	SLPF( 2,5)

\*Base Case means Default.Lib w/o Associate Nuclide contribution s.

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Risk Slope and Environmental Transport Fact

ors for the Ground Pathway

Nuclide	Slope(i)*	ETFG(i,t) At Time in				Years (dimensionless)			
		t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ba-137m	2.690E-06	4.963E-01	4.963E-01	4.963E-01	4.963E-01	4.963E-01	4.963E-01	4.963E-01	4.963E-01
Cs-137	5.320E-10	5.161E-01	5.161E-01	5.161E-01	5.161E-01	5.161E-01	5.161E-01	5.161E-01	5.161E-01
Sr-90	4.820E-10	5.187E-01	5.187E-01	5.187E-01	5.187E-01	5.187E-01	5.187E-01	5.187E-01	5.187E-01
Y-90	1.910E-08	4.974E-01	4.974E-01	4.974E-01	4.974E-01	4.974E-01	4.974E-01	4.974E-01	4.974E-01

\* - Units are 1/yr per (pCi/g) at infinite depth and area. Mul

tiplication by ETFG(i,t) converts to site conditions.



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Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 0.000E+00 years

Water Independent Pathways

(Inhalation excludes radon)

Radio-Nuclide	Water Independent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Fraction of Total						
	Ground	Inhalation	Radon	Plant	Meat	Milk	Soil	Risk							
Cs-137	1.640E-07	0.0818	6.126E-13	0.0000	0.000E+00	0.0000	3	.104E-09	0.0015	2.714E-10	0.0001	8.862E-11	0.0000	2.441E-11	0.0000
Sr-90	3.736E-08	0.0186	6.998E-11	0.0000	0.000E+00	0.0000	1	.751E-06	0.8740	3.536E-08	0.0176	1.050E-08	0.0052	1.837E-09	0.0009
Total	2.013E-07	0.1005	7.059E-11	0.0000	0.000E+00	0.0000	1	.754E-06	0.8755	3.564E-08	0.0178	1.059E-08	0.0053	1.861E-09	0.0009

Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 0.000E+00 years

Water Dependent Pathways

Water Dependent Pathways

Radio-Nuclide	Water Dependent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Fraction of Total						
	Water	Fish	Radon	Plant	Meat	Milk	All path	Risk							
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.674E-07	0.0836
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.836E-06	0.9164
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.004E-06	1.0000

\*\*\*CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Amount of Intake Quantities QINT(i,p,t) f  
As pCi/yr a

or Individual Radionuclides (i) and Pathways (p)  
t = 1.000E+00 years

Water Independent Pathways (Inhalation w/o radon)

Water Dependent Pathways

Radio-Nuclide	Inhalation	Plant	Meat	Milk	Soil
Cs-137	2.471E-04	3.749E+00	3.278E-01	1.070E-01	2.949E-02
Sr-90	7.858E-03	8.943E+02	1.806E+01	5.362E+00	9.378E-01

Radio-Nuclide	Water	Fish	Plant	Meat	Milk	Ingesti	Total
Cs-137	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.213E+00
Sr-90	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	9.187E+02

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\* Sum of all ingestion pathways, i.e. water independent plant, and water-dependent water, fish, plant, meat, milk pathways

meat, milk, soil

Excess Cancer Risks CNRS(i,p,t) for Individual and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t = 1.000E+00 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio-Nuclide	Ground risk fract.	Inhalation risk fract.	Plant risk fract.
Cs-137	1.602E-07	0.0823	5.986E-13
Sr-90	3.628E-08	0.0186	6.796E-11
Total	1.965E-07	0.1009	6.855E-11

Radio-Nuclide	Meat risk fract.	Milk risk fract.	Soil risk fract.
Cs-137	.652E-10	0.0001	8.659E-11
Sr-90	.435E-08	0.0176	1.020E-08
Total	.461E-08	0.0178	1.028E-08

Excess Cancer Risks CNRS(i,p,t) for Individual and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t = 1.000E+00 years

Water Dependent Pathways

ndent Pathways

Radio-Nuclide	Water risk fract.	Fish risk fract.	Plant risk fract.
Cs-137	0.000E+00	0.0000	0.000E+00
Sr-90	0.000E+00	0.0000	0.000E+00
Total	0.000E+00	0.0000	0.000E+00

Radio-Nuclide	Meat risk fract.	Milk risk fract.	All Pathways** risk fract.
Cs-137	.000E+00	0.0000	0.000E+00
Sr-90	.000E+00	0.0000	0.000E+00
Total	.000E+00	0.0000	0.000E+00

\*\* Sum of water independent ground, inhalation, plant, meat, milk, and water dependent water, fish, plant, meat, milk pathways

lk, soil

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Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I  
and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p)  
Risk at t= 1.000E+00 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio- Nuclide	Water Independent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					ways						
	Ground risk	Inhalation fract.	Radon risk	Plant risk	Meat fract.	Milk risk	Soil fract.	ways							
Cs-137	1.602E-07	0.0823	5.986E-13	0.0000	0.000E+00	0.0000	3	.033E-09	0.0016	2.652E-10	0.0001	8.659E-11	0.0000	2.386E-11	0.0000
Sr-90	3.628E-08	0.0186	6.796E-11	0.0000	0.000E+00	0.0000	1	.701E-06	0.8735	3.435E-08	0.0176	1.020E-08	0.0052	1.783E-09	0.0009
Total	1.965E-07	0.1009	6.855E-11	0.0000	0.000E+00	0.0000	1	.704E-06	0.8751	3.461E-08	0.0178	1.028E-08	0.0053	1.807E-09	0.0009

Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I  
and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p)  
Risk at t= 1.000E+00 years

Water Dependent Pathways

ndent Pathways

Radio- Nuclide	Water Dependent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					ways						
	Water risk	Fish fract.	Radon risk	Plant risk	Meat fract.	Milk risk	All path risk	ways							
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.636E-07	0.0840
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.783E-06	0.9160
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.947E-06	1.0000

\*\*\*CNRS(i,p,t) includes contribution from decay daughter radio

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Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 3.000E+00 years

Water Independent Pathways

(Inhalation excludes radon)

Radio-Nuclide	Water Independent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Risk						
	Ground	Inhalation	Radon	Plant	Meat	Milk	Soil	ways							
	risk fract.	risk fract.	risk fract.	risk fract.	risk fract.	risk fract.	risk	ways	risk fract.						
Cs-137	1.530E-07	0.0832	5.715E-13	0.0000	0.000E+00	0.0000	2	.896E-09	0.0016	2.532E-10	0.0001	8.268E-11	0.0000	2.278E-11	0.0000
Sr-90	3.421E-08	0.0186	6.409E-11	0.0000	0.000E+00	0.0000	1	.604E-06	0.8726	3.239E-08	0.0176	9.616E-09	0.0052	1.682E-09	0.0009
Total	1.872E-07	0.1018	6.466E-11	0.0000	0.000E+00	0.0000	1	.607E-06	0.8742	3.264E-08	0.0178	9.698E-09	0.0053	1.705E-09	0.0009

Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 3.000E+00 years

Water Dependent Pathways

Water Dependent Pathways

Radio-Nuclide	Water Dependent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Risk						
	Water	Fish	Radon	Plant	Meat	Milk	All path	ways							
	risk fract.	risk fract.	risk fract.	risk fract.	risk fract.	risk fract.	risk	ways	risk fract.						
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.562E-07	0.0850
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.682E-06	0.9150
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.838E-06	1.0000

\*\*\*CNRSI(i,p,t) includes contribution from decay daughter radio

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Amount of Intake Quantities QINT(i,p,t) f  
As pCi/yr a

or Individual Radionuclides (i) and Pathways (p)  
t t= 1.000E+01 years

Water Independent Pathways (Inhalation w/o radon)

Water Dependent Pathways

Radio-Nuclide	Inhalation	Plant	Meat	Milk	Soil
Cs-137	2.006E-04	3.044E+00	2.662E-01	8.692E-02	2.395E-02
Sr-90	6.035E-03	6.869E+02	1.387E+01	4.118E+00	7.203E-01

Radio-Nuclide	Water	Fish	Plant	Meat	Milk	Ingesti	Total
Cs-137	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.421E
Sr-90	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.056E

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\* Sum of all ingestion pathways, i.e. water independent plant, and water-dependent water, fish, plant, meat, milk pathways

meat, milk, soil

Excess Cancer Risks CNRS(i,p,t) for Individual and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t= 1.000E+01 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio-Nuclide	Ground risk fract.	Inhalation risk fract.	Plant risk fract.
Cs-137	1.301E-07	0.0866	4.860E-13
Sr-90	2.786E-08	0.0185	5.219E-11
Total	1.579E-07	0.1051	5.268E-11

Radio-Nuclide	Meat risk fract.	Milk risk fract.	Soil risk fract.
Cs-137	.153E-10	0.0001	7.031E-11
Sr-90	.638E-08	0.0176	7.832E-09
Total	.660E-08	0.0177	7.902E-09

Excess Cancer Risks CNRS(i,p,t) for Individual and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t= 1.000E+01 years

Water Dependent Pathways

ndent Pathways

Radio-Nuclide	Water risk fract.	Fish risk fract.	Plant risk fract.
Cs-137	0.000E+00	0.0000	0.000E+00
Sr-90	0.000E+00	0.0000	0.000E+00
Total	0.000E+00	0.0000	0.000E+00

Radio-Nuclide	Meat risk fract.	Milk risk fract.	All Pathways** risk fract.
Cs-137	.000E+00	0.0000	0.000E+00
Sr-90	.000E+00	0.0000	0.000E+00
Total	.000E+00	0.0000	0.000E+00

\*\* Sum of water independent ground, inhalation, plant, meat, milk, and water dependent water, fish, plant, meat, milk pathways

lk, soil

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Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 1.000E+01 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio-Nuclide	Water Independent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					ways						
	Ground risk	Inhalation fract.	Radon risk fract.	Plant risk fract.	Meat risk fract.	Milk risk fract.	Soil risk	fract.							
Cs-137	1.301E-07	0.0866	4.860E-13	0.0000	0.000E+00	0.0000	2	.463E-09	0.0016	2.153E-10	0.0001	7.031E-11	0.0000	1.937E-11	0.0000
Sr-90	2.786E-08	0.0185	5.219E-11	0.0000	0.000E+00	0.0000	1	.306E-06	0.8693	2.638E-08	0.0176	7.832E-09	0.0052	1.370E-09	0.0009
Total	1.579E-07	0.1051	5.268E-11	0.0000	0.000E+00	0.0000	1	.309E-06	0.8710	2.660E-08	0.0177	7.902E-09	0.0053	1.389E-09	0.0009

Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 1.000E+01 years

Water Dependent Pathways

ndent Pathways

Radio-Nuclide	Water Dependent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					ways						
	Water risk fract.	Fish risk fract.	Radon risk fract.	Plant risk fract.	Meat risk fract.	Milk risk fract.	All path risk	fract.							
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.328E-07	0.0884
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.370E-06	0.9116
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.503E-06	1.0000

\*\*\*CNRSI(i,p,t) includes contribution from decay daughter radio

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Amount of Intake Quantities QINT(i,p,t) f  
As pCi/yr a

or Individual Radionuclides (i) and Pathways (p)  
t t= 3.000E+01 years

Water Independent Pathways (Inhalation w/o radon)

Water Dependent Pathways

Radio-Nuclide	Inhalation	Plant	Meat	Milk	Soil
Cs-137	1.263E-04	1.916E+00	1.676E-01	5.471E-02	1.507E-02
Sr-90	3.358E-03	3.822E+02	7.718E+00	2.291E+00	4.007E-01

Radio-Nuclide	Water	Fish	Plant	Meat	Milk	Ingesti	Total	on*
Cs-137	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.154E	+00
Sr-90	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.926E	+02

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\* Sum of all ingestion pathways, i.e. water independent plant, and water-dependent water, fish, plant, meat, milk pathways

meat, milk, soil

Excess Cancer Risks CNRS(i,p,t) for Individual  
and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t= 3.000E+01 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio-Nuclide	Ground risk fract.	Inhalation risk fract.	Plant risk fract.
Cs-137	8.189E-08	0.0968	3.060E-13
Sr-90	1.550E-08	0.0183	2.904E-11
Total	9.739E-08	0.1152	2.934E-11

Radio-Nuclide	Meat risk fract.	Milk risk fract.	Soil risk fract.
Cs-137	.356E-10	0.0002	4.426E-11
Sr-90	.468E-08	0.0174	4.357E-09
Total	.481E-08	0.0175	4.401E-09

Excess Cancer Risks CNRS(i,p,t) for Individual  
and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t= 3.000E+01 years

Water Dependent Pathways

ndent Pathways

Radio-Nuclide	Water risk fract.	Fish risk fract.	Plant risk fract.
Cs-137	0.000E+00	0.0000	0.000E+00
Sr-90	0.000E+00	0.0000	0.000E+00
Total	0.000E+00	0.0000	0.000E+00

Radio-Nuclide	Meat risk fract.	Milk risk fract.	All Pathways** risk fract.
Cs-137	.000E+00	0.0000	0.000E+00
Sr-90	.000E+00	0.0000	0.000E+00
Total	.000E+00	0.0000	0.000E+00

\*\* Sum of water independent ground, inhalation, plant, meat, milk, and water dependent water, fish, plant, meat, milk pathways

lk, soil

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Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 3.000E+01 years

Water Independent Pathways

(Inhalation excludes radon)

Radio-Nuclide	Water Independent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Fraction of Total						
	Ground	Inhalation	Radon	Plant	Meat	Milk	Soil	Risk							
Cs-137	8.189E-08	0.0968	3.060E-13	0.0000	0.000E+00	0.0000	1	.550E-09	0.0018	1.356E-10	0.0002	4.426E-11	0.0001	1.219E-11	0.0000
Sr-90	1.550E-08	0.0183	2.904E-11	0.0000	0.000E+00	0.0000	7	.267E-07	0.8593	1.468E-08	0.0174	4.357E-09	0.0052	7.621E-10	0.0009
Total	9.739E-08	0.1152	2.934E-11	0.0000	0.000E+00	0.0000	7	.283E-07	0.8612	1.481E-08	0.0175	4.401E-09	0.0052	7.743E-10	0.0009

Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 3.000E+01 years

Water Dependent Pathways

Water Dependent Pathways

Radio-Nuclide	Water Dependent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Fraction of Total						
	Water	Fish	Radon	Plant	Meat	Milk	All path	Risk							
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.363E-08	0.0989
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.621E-07	0.9011
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.457E-07	1.0000

\*\*\*CNRSI(i,p,t) includes contribution from decay daughter radio

nuclides

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T 31 BACKFILL.RAD

Amount of Intake Quantities QINT(i,p,t) f
As pCi/yr a

or Individual Radionuclides (i) and Pathways (p)
t t= 1.000E+02 years

Water Independent Pathways (Inhalation w/o radon)

Water Dependent Pathways

Table with columns: Radio-Nuclide, Inhalation, Plant, Meat, Milk, Soil. Rows for Cs-137 and Sr-90.

Table with columns: Water, Fish, Plant, Meat, Milk, Ingesti, Total. Rows for Cs-137 and Sr-90.

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\* Sum of all ingestion pathways, i.e. water independent plant, and water-dependent water, fish, plant, meat, milk pathways

meat, milk, soil

Excess Cancer Risks CNRS(i,p,t) for Individual and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)
t= 1.000E+02 years

Water Independent Pathways

ys (Inhalation excludes radon)

Table with columns: Ground, Inhalation, Plant, risk fract. Rows for Cs-137, Sr-90, Total.

Table with columns: Meat, Milk, Soil, risk fract. Rows for Cs-137, Sr-90, Total.

Excess Cancer Risks CNRS(i,p,t) for Individual and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)
t= 1.000E+02 years

Water Dependent Pathways

Water Dependent Pathways

Table with columns: Water, Fish, Plant, risk fract. Rows for Cs-137, Sr-90, Total.

Table with columns: Meat, Milk, All Pathways\*\*, risk fract. Rows for Cs-137, Sr-90, Total.

\*\* Sum of water independent ground, inhalation, plant, meat, milk, and water dependent water, fish, plant, meat, milk pathways

lk, soil

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Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I  
and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p)  
Risk at t= 1.000E+02 years

Water Independent Pathways

(Inhalation excludes radon)

Radio- Nuclide	Water Independent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Fract.						
	Ground risk	Inhalation fract.	Radon risk	Plant risk	Meat fract.	Milk risk	Soil risk	Fract.							
Cs-137	1.621E-08	0.1416	6.056E-14	0.0000	0.000E+00	0.0000	3	.068E-10	0.0027	2.683E-11	0.0002	8.760E-12	0.0001	2.413E-12	0.0000
Sr-90	1.991E-09	0.0174	3.729E-12	0.0000	0.000E+00	0.0000	9	.334E-08	0.8157	1.885E-09	0.0165	5.596E-10	0.0049	9.788E-11	0.0009
Total	1.820E-08	0.1590	3.790E-12	0.0000	0.000E+00	0.0000	9	.364E-08	0.8184	1.912E-09	0.0167	5.683E-10	0.0050	1.003E-10	0.0009

Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I  
and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p)  
Risk at t= 1.000E+02 years

Water Dependent Pathways

Water Dependent Pathways

Radio- Nuclide	Water Dependent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Fract.						
	Water risk	Fish fract.	Radon risk	Plant risk	Meat fract.	Milk risk	All path risk	Fract.							
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.655E-08	0.1447
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.787E-08	0.8553
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.144E-07	1.0000

\*\*\*CNRSI(i,p,t) includes contribution from decay daughter radio

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T 31 BACKFILL.RAD

Amount of Intake Quantities QINT(i,p,t) f  
As pCi/yr a

or Individual Radionuclides (i) and Pathways (p)  
t t= 3.000E+02 years

Water Independent Pathways (Inhalation w/o radon)

Water Dependent Pathways

Radio-Nuclide	Inhalation	Plant	Meat	Milk	Soil
Cs-137	2.443E-07	3.706E-03	3.241E-04	1.058E-04	2.915E-05
Sr-90	1.225E-06	1.394E-01	2.815E-03	8.358E-04	1.462E-04

Radio-Nuclide	Water	Fish	Plant	Meat	Milk	Ingesti	Total	on*
Cs-137	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.165E	-03
Sr-90	6.473E-02	3.283E-05	9.856E-04	1.024E-04	5.590E-05	2.091E		-01

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\* Sum of all ingestion pathways, i.e. water independent plant, and water-dependent water, fish, plant, meat, milk pathways

meat, milk, soil

Excess Cancer Risks CNRS(i,p,t) for Individual  
and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t= 3.000E+02 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio-Nuclide	Ground risk fract.	Inhalation risk fract.	Plant risk fract.
Cs-137	1.584E-10	0.2862	5.917E-16
Sr-90	5.655E-12	0.0102	1.059E-14
Total	1.640E-10	0.2964	1.118E-14

Radio-Nuclide	Meat risk fract.	Milk risk fract.	Soil risk fract.
Cs-137	.622E-13	0.0005	8.561E-14
Sr-90	.354E-12	0.0097	1.589E-12
Total	.616E-12	0.0101	1.675E-12

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Excess Cancer Risks CNRS(i,p,t) for Individual  
and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t= 3.000E+02 years

Water Dependent Pathways

ndent Pathways

Radio-Nuclide	Water risk fract.	Fish risk fract.	Plant risk fract.
Cs-137	0.000E+00	0.0000	0.000E+00
Sr-90	1.111E-10	0.2007	7.257E-14
Total	1.111E-10	0.2007	7.257E-14

Radio-Nuclide	Meat risk fract.	Milk risk fract.	All Pathways**
Cs-137	.000E+00	0.0000	0.000E+00
Sr-90	.263E-13	0.0004	1.235E-13
Total	.263E-13	0.0004	1.235E-13

\*\* Sum of water independent ground, inhalation, plant, meat, milk, and water dependent water, fish, plant, meat, milk pathways

lk, soil

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Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 3.000E+02 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio-Nuclide	Water Independent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					ways						
	Ground risk	Inhalation fract.	Radon risk fract.	Plant risk fract.	Meat risk fract.	Milk risk fract.	Soil risk	fract.							
Cs-137	1.584E-10	0.2862	5.917E-16	0.0000	0.000E+00	0.0000	2	.998E-12	0.0054	2.622E-13	0.0005	8.561E-14	0.0002	2.358E-14	0.0000
Sr-90	5.655E-12	0.0102	1.059E-14	0.0000	0.000E+00	0.0000	2	.651E-10	0.4790	5.354E-12	0.0097	1.589E-12	0.0029	2.780E-13	0.0005
Total	1.640E-10	0.2964	1.118E-14	0.0000	0.000E+00	0.0000	2	.681E-10	0.4844	5.616E-12	0.0101	1.675E-12	0.0030	3.016E-13	0.0005

Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 3.000E+02 years

Water Dependent Pathways

ndent Pathways

Radio-Nuclide	Water Dependent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					ways						
	Water risk fract.	Fish risk fract.	Radon risk fract.	Plant risk fract.	Meat risk fract.	Milk risk fract.	All path risk	fract.							
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.617E-10	0.2923
Sr-90	1.111E-10	0.2007	7.257E-14	0.0001	0.000E+00	0.0000	2	.178E-12	0.0039	2.263E-13	0.0004	1.235E-13	0.0002	3.917E-10	0.7077
Total	1.111E-10	0.2007	7.257E-14	0.0001	0.000E+00	0.0000	2	.178E-12	0.0039	2.263E-13	0.0004	1.235E-13	0.0002	5.534E-10	1.0000

\*\*\*CNRSI(i,p,t) includes contribution from decay daughter radio

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T 31 BACKFILL.RAD

Amount of Intake Quantities QINT(i,p,t) f  
As pCi/yr a

or Individual Radionuclides (i) and Pathways (p)  
t t= 1.000E+03 years

Water Independent Pathways (Inhalation w/o radon)

Water Dependent Pathways

Radio-Nuclide	Inhalation	Plant	Meat	Milk	Soil
Cs-137	2.253E-14	3.419E-10	2.990E-11	9.762E-12	2.689E-12
Sr-90	1.496E-15	1.702E-10	3.438E-12	1.021E-12	1.785E-13

Radio-Nuclide	Water	Fish	Plant	Meat	Milk	Ingesti	Total	on*
Cs-137	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.842E	-10
Sr-90	1.061E-09	5.385E-13	1.617E-11	1.682E-12	9.171E-13	1.255E		-09

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\* Sum of all ingestion pathways, i.e. water independent plant, and water-dependent water, fish, plant, meat, milk pathways

meat, milk, soil

Excess Cancer Risks CNRS(i,p,t) for Individual and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t= 1.000E+03 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio-Nuclide	Ground risk fract.	Inhalation risk fract.	Plant risk fract.
Cs-137	1.461E-17	0.8667	5.459E-23
Sr-90	6.905E-21	0.0004	1.293E-23
Total	1.462E-17	0.8671	6.752E-23

Radio-Nuclide	Meat risk fract.	Milk risk fract.	Soil risk fract.
Cs-137	.418E-20	0.0014	7.897E-21
Sr-90	.537E-21	0.0004	1.941E-21
Total	.072E-20	0.0018	9.838E-21

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Excess Cancer Risks CNRS(i,p,t) for Individual and Fraction of Total Risk at

Radionuclides (i) and Pathways (p)  
t= 1.000E+03 years

Water Dependent Pathways

ndent Pathways

Radio-Nuclide	Water risk fract.	Fish risk fract.	Plant risk fract.
Cs-137	0.000E+00	0.0000	0.000E+00
Sr-90	1.559E-18	0.0925	1.019E-21
Total	1.559E-18	0.0925	1.019E-21

Radio-Nuclide	Meat risk fract.	Milk risk fract.	All Pathways** risk fract.
Cs-137	.000E+00	0.0000	0.000E+00
Sr-90	.183E-21	0.0002	1.736E-21
Total	.183E-21	0.0002	1.736E-21

\*\* Sum of water independent ground, inhalation, plant, meat, milk, and water dependent water, fish, plant, meat, milk pathways

lk, soil

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Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 1.000E+03 years

Water Independent Pathways

ys (Inhalation excludes radon)

Radio-Nuclide	Water Independent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Risk at t= 1.000E+03 years						
	Ground	Inhalation	Radon	Plant	Meat	Milk	Soil	ways							
	risk fract.	risk fract.	risk fract.	risk fract.	risk fract.	risk fract.	risk	risk fract.							
Cs-137	1.461E-17	0.8667	5.459E-23	0.0000	0.000E+00	0.0000	2	.766E-19	0.0164	2.418E-20	0.0014	7.897E-21	0.0005	2.176E-21	0.0001
Sr-90	6.905E-21	0.0004	1.293E-23	0.0000	0.000E+00	0.0000	3	.237E-19	0.0192	6.537E-21	0.0004	1.941E-21	0.0001	3.394E-22	0.0000
Total	1.462E-17	0.8671	6.752E-23	0.0000	0.000E+00	0.0000	6	.003E-19	0.0356	3.072E-20	0.0018	9.838E-21	0.0006	2.515E-21	0.0001

Total Excess Cancer Risk CNRS(i,p,t)\*\*\* for I and Fraction of Total

Initially Existent Radionuclides (i) and Pathways (p) Risk at t= 1.000E+03 years

Water Dependent Pathways

ndent Pathways

Radio-Nuclide	Water Dependent Pathways			Initially Existent Radionuclides (i) and Pathways (p)					Risk at t= 1.000E+03 years						
	Water	Fish	Radon	Plant	Meat	Milk	All path	ways							
	risk fract.	risk fract.	risk fract.	risk fract.	risk fract.	risk fract.	risk	risk fract.							
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0	.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.492E-17	0.8852
Sr-90	1.559E-18	0.0925	1.019E-21	0.0001	0.000E+00	0.0000	3	.059E-20	0.0018	3.183E-21	0.0002	1.736E-21	0.0001	1.935E-18	0.1148
Total	1.559E-18	0.0925	1.019E-21	0.0001	0.000E+00	0.0000	3	.059E-20	0.0018	3.183E-21	0.0002	1.736E-21	0.0001	1.686E-17	1.0000

\*\*\*CNRSI(i,p,t) includes contribution from decay daughter radio

nuclides